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CONSEQUENCES OF THE CHOICE FOR THE ROAD MODAL IN BRAZILIAN SUSTAINABLE DEVELOPMENT

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CONSEQUÊNCIAS DA ESCOLHA DO MODAL RODOVIÁRIO NO DESENVOLVIMENTO SUSTENTÁVEL BRASILEIRO

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ABSTRACT:

The integral and sustainable development of a nation is closely linked to its transportation infrastructure. The purpose of the road network is to integrate regions, cultures, and people, moving products and goods, boosting the economy and reducing inequalities. History shows that Brazil elected the road modal as its main means of transportation, mitigating the developmentalist plan. The objective of this work is to demonstrate that, in the course of history, this choice has presented weaknesses, compromising the achievement of robust and sustainable development. In order to correct such flaws, it is fundamental that the governors prioritize the elaboration of budgets that are adequate to the organization of the territory, as well as the equitable distribution of opportunities and wealth. With these measures, it is possible to foster economic development, in addition to promoting social and environmental sustainability

Keywords: Sustainable development. Highway transportation. Economics. Road networks.

INTRODUCTION

The extension of the Brazilian territory is 8,511,000 km². Ever since the early colonization of the country, access to the most distant regions has been an obstacle to trade and national integration. From the middle of the 20th century on, railway transportation began to wane due to the industrialization process and the promotion of the automobile industry in the country. In this new context, the road modal was gaining strength, andcreating roads became a governmentpractice to foster economic development.

However, it is necessary to observe the course of the country's socio-political and economic history, corroborated by statistical data that measure the development indexes. From the data, the option for the road modalmay be questioned, and thus this essay aims to understand the relations between the national economic process and the reasons that led to the choice for the road systems in Brazil. Throughout the approach, an attempt is made to identify the benefits and losses arising from this option, discerning whether the model contributed to comprehensive and sustainable economic development.

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Based on bibliographic and documental research, Chapter 1 seeks to demonstrate that the failure of rail transport and the emergence of the industrialization process fostered the entry of automobile industries in the country. To this end, a parallel is drawn between the phases of the socio-political and economical processes in the country and the implementation of roadways. Chapter 2 emphasizes the importance of the road network for transporting people and cargo. Through the data shown, an overview of the current state of Brazilian roads is provided.

Chapter 3 analyzes the state entities responsible for road transportation infrastructure in Brazil. At the same time, it addresses environmental sustainability and the risks arising from the implementation of highways, pointing out alternatives to avoid or mitigate them. Finally, the core subject is addressed, that is, the analysis of the positive and negative consequences generated by the road modal. In order to contribute to sustainable development, some measures are suggested so that governments may harmonize the mitigation of the most distinct regions of Brazil with environmental preservation.

1 CONTEXTUALIZATION OF BRAZILIAN ROAD POLICY

The history of transportation in Brazil is intrinsically related to the colonization process and to the country's economic development. In the first century of colonization, there were no land routes. The connections between the captaincies were made throughriskysea voyages (COIMBRA, 1974). In the early colonization period, trails and tracks were opened to meet the needs of colonizers, mill owners, cattle ranchers and adventurers seeking precious metals. (BARAT, 2007).

In the transition period between the 19th and 20th centuries, Brazil produced and exported primary products. Due to the territorial size and the distinct economic potential of each region, regional archipelagos were formed, which were mostly concentrated along the coastal strip. However, the lack of territorial integration between these archipelagos made it difficult to transport the agricultural and extractive production. Thus, with the purpose of integrating the producing regions, railroads were established, favoring the arrival of products to regional ports, from where they would reach Western Europe and North America (BARAT, 2007).

The railroad system was driven predominantly by the concessions of the railroads to private enterprise in the early 20th century. Despite this effort, the railroad network was insufficient to meet demand. The works were uncoordinated, making communication among the various lines difficult. This precarious system required the simultaneous use of coastal navigation to help the flow of products such as coffee, rubber, cotton and sugar. (COIMBRA, 1974).

During the period that extended from the Proclamation of the Republic in November 1889 until the Revolution of 1930, international trade was bustling. Exports and imports contributed to the growth of the national gross domestic product - GDP. However, following the Great Depression of 1929, which culminated in the crash of the New York Stock Exchange and the closing of the international market, the country underwent great changes. As a result, there was a transition from an agricultural economy to an industrial one, fostering Brazilian economic development (BARAT, 2007).

The transportation infrastructure not only failed as an efficient means of unifying the internal market, but also began to deteriorate. As the raw materials needed for its conservation were imported, the costs made its maintenance unviable, discouraging new investments(BARAT,

2007). An idea thus arose that highways would be the most adequate solution to supplement internal transportation, integrate the national territory and reduce the obstacles to the circulation of products (COIMBRA, 1974).

The idea of opting for the road system had already been discussed in the government of President Washington Luiz (1925-1929). To this end, a special fund was created for the construction and conservation of highways. On August 25, 1928, under the slogan "to govern is to open roads", the Rio-Petrópolis highway was inaugurated, the first paved stretch in Brazil.

The Federal Constitution of 1934, although still prioritizing navigation, already foresaw the creation of a national plan for railroads and highways. In the same year, Getúlio Vargas created the General National Plan of Transportation, the first national project for land transportation. Although it had a multimodal nature, it prioritizedhighways(MINISTÉRIO DA INFRAESTRUTURA, 2014).

From the 1930s on, the option for road transport started to be considered as a way to foster social and economic development. However, it was only after the Second World War that investments started to focus on highways because they were a "cheaper,more agileand comprehensive" alternative.(BARAT, 2007).With the Goals Plan, the federal government intended to create better economic, financial, social, and political conditions to attract private investments. Therefore, tax subsidies were granted to international companies, mainly in the automobile industry, to establish themselves in Brazil. The objective was to facilitate the acquisition of the raw materials necessary for the operation of the industry. The aim was also to sell cars and trucks, so the expansion of the road infrastructure was a necessary measure.

Initially, the option for the highway system was aimed at integrating the national territory. Later, in the post-war period, its purpose was to meet the needs of the automobile industrial complexes that were installed in the country, which demanded the construction and expansion of the highway network (MIGLIORINI, 2012). One of the priorities of the target plan was topave ways, which had only nine hundred kilometers paved in 1956, reaching five thousand kilometers by 1960. Another goal was to pave another 12,000 kilometers, increasing the federal railroad network to 22,000 kilometers.

ForBarat (2007), this expansion favored small municipalities located close to the new road network. It also contributed to promote the formation of productive clusters. In the 1960s and 1970s, there was a considerable expansion of road infrastructure, in the paving of already extinct highways and the opening of new ones. These measures encouraged the growth of the motor vehicle fleet (cars, buses and trucks) consolidating the road transport policy (BARAT, 1991).

During the period called "Economic Miracle" (1969-1973), the National Integration Plan (*Plano de Integração Nacional*– PIN) was instituted, under the slogans "integrate or yield" and "a land without men for men without land". By the end of 1970, road transport was already responsible for the circulation of 73% of the product tons in the country. The economic growth at the time also contributed to the process of deconcentrating the national industry. The paved federal and state highway network multiplied four-fold between 1960 and 1970 (ACSELRAD, 2001).

A historical analysis of the Brazilian economy shows that, in the post-war period, there was considerable economic growth, due to the participation of foreign capital resulting from loans and also the implementation of international industry. The improvement of the road transport infrastructure undoubtedlybrought significant growth, in addition to promoting the economic and territorial integration of the country's different regions (MIGLIORINI, 2012).

However, the growth of the automobile industry during the Juscelino Kubitschek administration (1956-1966) brought great dependence on imports of oil and its derivatives.

As a consequence, the national politics suffered great tribulations in 1979, with the second oil crisis, tripling its prices and compromising the national economy. There was a sharp rise in interest rates in the international market, aggravating the situation of debtor countries. (MIGLIORINI, 2012).

The increase in foreign debt and the decrease in growth during the 1980s generated economic stagnation and uncontrolled inflation rates. During the so-called "lost decade", the country faced the most serious economic crisis in history evidenced by recession, inflation, and unemployment. As a result, economic growth, previously based on external financing, could not be sustained. (MIGLIORINI, 2012).

During the mentioned period, the federal government approved some plans to reduce regional inequalities, mainly in relation to the Northeast and the Amazon. The main one was the National Development Plan - PND, which foresaw the opening of highways to integrate the two regions with the rest of the country. However, the expected success was not achieved, due to the government's inability to manage the crisis(MIGLIORINI, 2012).

The severe financial crisis reduced investments in transportation infrastructure. The consequent deterioration of the road network forced the federal government to stimulate greater participation of the states in the development of road transport policy. Agreements were formed for the paving of state highways, with the objective of connecting them to federal highways. In the same period, the privatization of public companies began as a way to attract domestic and foreign capital. (BARAT, 2007).

The lack of investment made the transportation infrastructure an obstacle to the country's economy in the 1990s. At the time, 20% of the highway network was in poor or regular state of conservation. Furthermore, the truck fleet was obsolete, leading to higher fuel consumption and an increase in the number of accidents. In the case of exports, transport costs, higher than international standards, affected Brazilian industries, making them more expensive and less competitive (SUZIGAN, 1991).

In order to face the economic stagnation seen in the 1980s, a new economic development model was adopted by Fernando Collor de Mello's government (1990-1992). The model was based on three principles: opening up of the Brazilian economy with the reduction of import tariffs, stimulating international competition, in order to allow the country to be inserted in the globalization process; and the reduction of the State's presence in the economy and, consequently, the promotion of privatizations (MIGLIORINI, 2012).

Within this context, the multiannual plans were implemented, which in the four-year period between 1996 and 1999, during the government of Fernando Henrique Cardoso, stimulated the creation of "axes". The plans aimed at new regional development frontiers. The projects were considered important for the creation of employment and income, according to the needs of each axis (ACSELRAD, 2001). Integration axes were created contemplating all regions of the country, in addition to the opening to the Caribbean and Pacific regions. The investments foreseen in the multiannual plan from 1996 to 1999 focused mainly on the development of these axes of articulation.(ACSELRAD, 2001).

The plan also allowed for partnerships between the Federal Union, states, municipalities and the private sector. In the 1990s, the process of highway concessions for private initiative began, contributing to the partial recovery of the road network, although a large part of it remained as the responsibility of the Federal Government. The plans that followed continued with the same intent of investing in transportation infrastructure. However, a closer look was taken at the guidelines regarding the need for sustainable developmentthat were consolidating on the international scenario. This new vision covered economic, social and environmental aspects. (SACHS, 2008)

From these new guidelines, it is understood that the task of planning the country's economic development should be shared between public and private entities. It was observed that investment in road transport infrastructure contributed to foster economic growth, as a result of private investments, without neglecting the other aspects of development (MIGLIORINI, 2012).

This developmental project, however, faces obstacles in the lack of political will. The federal government has been reducing investments in transportation infrastructure. For the road modality alone, Brazil needs to invest about five hundred billion reais in a hundred structuring projects. This year, federal investment has been reduced by 3% in relation to the previous year, which was R$7.68 billion. It was considered by the National Transportation Confederation to be the lowest in sixteen years. This shortage of resources for road transportation leads to an increase in the cost of products. In addition, it reduces competitiveness, straying from its main objective of boosting the country's economy (CNT, 2019).

2 THE STATUS OF THE BRAZILIAN ROAD NETWORK TODAY

The importance of transportation infrastructure for a nation is undeniable, especially given Brazil'smassive territorial extensions. In order to take development to the most distant regions it is indeed necessary to elaborate logistics that allow the interconnection of transport systems (road, rail, air and waterways). The following are fundamental guidelines for the flow of products and the residual exchange.

As noted in the previous chapter, for political, economic, and social reasons, from the mid-twentieth century on, Brazil began to show preference for the adoption of the road modal. According to data from the National Confederation of Transport - CNT, collected in 2018, currently, the national road network consists of 1,720,700 kilometers of highways. Of this total, 213,453 kilometers are paved, corresponding to 12.4% of the mesh. Of these, 65,370 km are federal highways (30.6%) while 148,083 km are state or municipal ones (69.4%). The unpaved stretches, on the other hand, represent 78.5% of the total national road network, that is, 1,349,938 kilometers (CNT, 2019).

The Southern region has the largest extension of paved federal highways, followed by the Northeast, the Southeast, the Midwest, and the North. It should be noted that 12.8% of the federal paved road network is the object of concessions to the private sector, under the supervision of the National Land Transport Agency (CNT, 2019). Research points out that, already in 2014, the road sector was responsible for the largest flow of national cargo transportation, accounting for 61.1%. It is followed by rail systems with 20.7%, and waterways, with 13.6%. Road transportation accounts for approximately 61% of freight and 95% of the flow of passengers (CNT, 2019).

These data demonstrate the importance of the highway network for the economic development of the country and for regional integration. As a comparison, in China, over 50% of production is transported by waterways; in the United States, 30% of cargo is transported by rail; in Russia, 32% of cargo transport uses roads, while in Canada, this percentage drops to 8%. With regard to passenger transportation, in 2017, approximately 88.7 million people were transported by Brazilian highways. These data demonstrate the importance of the road system for Brazil (CNT, 2019).

In 2019, CNT technicians evaluated 108,863 kilometers of highways. Of this total, 64,198 kilometers (59.0%) presented some type of problem in the state of maintenance. In this evaluation, 37,628 kilometers were considered regular in quality, 19,039 kilometers were

classified as poor and 7,531 kilometers as terrible. This scenario results from insufficient investments in the sector. In 2018, R$ 7.48 billion were invested by the federal government, while the following year, there was a reduction to R$ 6.20 billion (CNT, 2019).

Among the difficulties posed by this system is the cost of paving the highways, which is approximately R$ 3,172,000.00 per kilometer. Other problems are unjust labor conditions for truck drivers, poor maintenance and overuse of the roads, environmental devastation caused by the construction work and the emission of pollutants (DNIT, 2017).

As an alternative measure to some of these obstacles, new privatizations were authorized, with toll roads. Other measures concernbolstering the rail and waterway systems. The objective is to promote a greater flow of cargo and passengers with lower operational costs. (ANTT, 2018).

3 GOVERNMENT POLICIESFOR ROAD INFRASTRUCTURE

The following brief historical considerations about the agencies responsible for Brazilian highways demonstrate that, depending on the political and economic period through which the nation passed, their attributions were altered. Currently, the management of the transportation system is the responsibility of the Ministry of Infrastructure - MINIFRA, created in 2018. However, its origins date back to the second half of the 21st century. In 1860, the office of the StateBusiness Secretary of Agriculture, Commerce and Public Works was created, focused on the expansion of railroads, and with the proclamation of the republic, in 1891, the body was replaced by the Ministry of Industry, Transportation and Public Works.

In 1906, by force of Decree no. 1.606, of December 24, it was renamed Ministry of Transportation and Public Works. Later, during the military regime, Decree-Law No. 200 of February 25, 1967, changed the name to Ministry of Transportation. In 1990, Law No. 8.028, April 12, created the Ministry of Infrastructure - MINFRA, unifying the powers of the areas of transport, mines, energy and communications(MINFRA, 2019).

In 1992, Law No. 8,422 of May 13 extinguished the Ministry of Infrastructure, and recreated the Ministry of Transportation, with attributions in the areas of transportation, telecommunications, and postal services. In 2016, the body also began to cover civil aviation, being called the Ministry of Transportation, Ports and Civil Aviation. Finally, in January 2019, it was renamed Ministry of Infrastructure. It is the body responsible for national policies on traffic and air, rail, and waterway transport, and also exercises competence in the areas of airports and ports. Linked to the Ministry of Infrastructure are the National Agency for Land Transport - ANTT and the National Department of Transport Infrastructure - DNIT. Both agencies are federal autarchies and have autonomous attributions (MINFRA, 2019).

The National Agency for Terrestrial Transportation - ANTT was created during the Fernando Henrique Cardoso administration, with the Law no. 10.233/2001 aiming to take over the management of matters inherent to the concession of federal roads, which had been granted by the extinct. From that year on, there has been a change in the economic concept, based on the idea of broader sustainable development. There has been a greater concern for the preservation of national unity, in addition to regional integration and the encouragement of socio-economic development (ANTT).

The history of the National Department of Infrastructure and Transportation - DNIT dates back to 1934, with the creation of the Department of Roads and Highways - DNER. Although it had technical autonomy, it did not have its own resources and its activities were not integrated with the road systems of the States and Municipalities. At the time, Brazil had a modest 423 kilometers of paved highways, between federal and state. On December 27, 1945,

Decree-Law No. 8,463 gave DNER the legal nature of an autarchy, with technical and financial autonomy. With the purpose of promoting administrative decentralization, it created the federal road districts and the National Road Fund (DNIT,2001).

In 1950 Brazil had about 1000 kilometers of paved roads. In the 1970s, with the aim of connecting the various regions, the DNER built important projects, such as the Trans-Amazonian Highway, Belém-Brasilia and others. By 1980, Brazil already had forty-seven thousand kilometers of paved federal highways. However, due to the economic and financial crisis that followed, changes were needed in the infrastructure management system. Finally, in 2007, Law No. 10233/2001 abolished the DNER and created the National Department of Infrastructure and Transport - DNIT.

The law gave the new agency the responsibility for the maintenance, expansion and inspection of federal highways. It is also responsible for solving problems related to the federal highway system. It is also its responsibility to supervise the traffic of people and goods, on roads, railways and waterways. Other attributions are listed in art.21 of Law #9.503/1997 (Brazilian Traffic Code). Among others, it is its competence to apply fines for traffic violations and to install electronic speed reducers.

In line with the spirit of cooperation among the federated entities, the State Highway Departments - DER were transformed, in general, into special autarchies responsible for the execution of the national road policy. They are also responsible for programming, executing and controlling all the technical and administrative services regarding the studies, projects, works, conservation, operation and administration of the highways integrated to the state road plan. They also have inspection attributions, extending to environmental issues related to the road infrastructure. Finally, they must promote the integration with the municipal and federal highways, as well as in the other transportation systems, aiming at the adequate service to users (DER-SP, 2019).

4 ENVIRONMENTAL IMPACT CAUSED BY THE CREATION OF ROADS

The implementation of a highway produces numerous environmental impacts that are not always given the necessary importance, because they usually burden the engineering project and delay the execution of the work. It is undeniable that a highway construction project produces environmental effects of the various kinds, namely: loss of arable land, densification of segregated natural areas, soil compaction or erosion, alteration of the water table, impairment of the natural vegetation, modification of the relief and waterways, serious imbalance in fauna, possibility of water and soil contamination by machine and equipment fuel (SIMONETTI, 2010).

At the beginning of the last century, environmental legislation was scarce. However, as of the 1970s, agricultural projects increased the deforested areas. This new scenario culminated in the elaboration of the National Environmental Policy, through Federal Law No. 6.938/1981. Its main objectives were to promote environmental preservation, such as the polluter/payer principle, the precautionary principle, and liability for ecological damage (BRASIL, 1981). In addition, it created the National Council for the Environment - CONAMA, with the objective of assisting in the governmental policy guidelines for the environment. In 1986, the new agency issued Resolution No. 01, which established two requirements for the licensing of large-scale activities. The Environmental Impact Study - EIA and the Environmental Impact Report - RIMA. In this context, the aforementioned resolution states:

> Environmental impact is any change in the physical, chemical and biological properties of the environment, caused by any form of matter or energy resulting from human activities that directly or indirectly affect the health, safety and welfare of the population; social and economic activities; biota; the aesthetic and sanitary conditions of the environment; the quality of environmental resources (CONAMA,1986).

The Federal Constitution of 1988, in art. 225, prescribes that the environment is a diffuse and collective right of non-discretionary and intergenerational nature. In order to protect it, it determines that a prior environmental impact study must be carried out. On the other hand, it provisions administrative sanctions for individuals and companies responsible for conducts considered harmful to the environment, mandating reparations for the damage caused. There is also the possibility of criminal sanctions, provisioned in the environmental crimes law (Lawnº. 9.605/1998).

Harmful actions can be committed directly by public agents or by private legal entities that sign a public works concession contract with the public administration, through prior budgetary allocation and broad public competition. The contract signed, as a rule, assigns to the concessionaire the responsibility of ensuring the protection of natural resources and ecosystems.

In order to regulate these concessions, CONAMA's Resolution No. 237/1997 established a list of requirements for obtaining a license from the component agencies, among them the Brazilian Institute of Environment and Renewable Natural Resources - IBAMA, the National Department of Infrastructure and Transportation - DNIT, the Audit Courts, and, depending on the area to be explored, the National Indian Foundation - FUNAI. Without compliance with these requirements, the work cannot be executed (CONAMA, 1997).

With the purpose of promoting environmental preservation, Law no. 10.233/2001 establishes the following principles and general guidelines concerning land transportation: the preservation of the national heritage and the promotion of socioeconomic development; the compatibility of transportation services with environmental preservation; the reduction of noise pollution levels and contamination of the air, soil and water resources; the promotion of appropriate practices for the rational use of fuels and environmental preservation (BRASIL, 2001).

As can be seen, the existing legal framework in Brazil is broad and robust. It imposes on the public administration the duty to observe the environmental feasibility of the project and to promote measures to mitigate and repair the inevitable interference that a highway may produce in the ecosystem.

5 THE IMPORTANCE OF ROADS FOR SUSTAINABLE DEVELOPMENT

Given these considerations about the trajectory of the road modal option, it is important to know to what extent did it contribute to the nation's progress. The following analysis is be based on the concept of economic growth and sustainable development. According to economic doctrine, growth means increasing the capacity to produce goods and services. Growth is calculated by observing the annual growth evolution of the gross national product - GNP or gross domestic product - GDP. It is also indicated based on the measurement of the growth of the country's labor force, the national income saved and invested, as well as the degree of technological improvement (SANDRONI, 1994).

Economic growth was bolstered after World War II given the need to promote the reconstruction of the economy, and the first world countries sought to recover their markets

by any means necessary. This period of economic restoration began in the mid-twentieth century, mainly in Western countries, and lasted until the early 1970s, being conceived as the "golden age of capitalism". The main causes of the decline in economic growth were the collapse of the Bretton Woods agreements in 1971, the oil crisis in 1973, and the stock market crash of 1973 to 1974.

In Brazil, the economic growth was boosted during the of JuscelinoKubitschek (1956-1966) administration, the motto of which was "fifty years in five". As a callback to Washington Luiz's administration (1926 - 1929), to which the motto "to govern is to open roads" is attributed, the period of opting for the road modal began. The idea that the nation's progress would be linked to the integration of the country's economic areas by means of highways was consolidated. The main objective was to bring together the productive regions and also to subsidize the industrialization process stimulated by the governments of the time. According to DNIT data, from 1952 to 1960, the Brazilian highway network grew by 14.03%. In the period from 1960 to 1970, the growth was around 52%. (DNIT, 2020).

Road infrastructure played an important role in economic expansion. In this regard, Barat states that: "The national GDP had its size multiplied by almost ten times, with an average annual growth rate of 7.6%. Per capita income, in turn, increased more than fourfold" (BARAT, 2007, p. 57). Indeed, in the 1970s, the expansion of the road network contributed to the process of integration of the national territory and to the expansion of industry, which was concentrated in the Southeast. This measure facilitated the installation of industrial centers in the North, Northeast and Center-West. The expansion of the highway network contributed greatly to the economic growth of these regions, called peripheral regions. (DINIZ, 1995).

Studies show that between 1940 and 1970, industrialization in the peripheral regions grew 7.9 times. São Paulo grew 16.1 times, while the Northeast region grew 5.9 times. During this period, the main trunk highways were created to reinforce intra and inter-regional market integration (CANO, 1998). However, for historical and geographical reasons, the economic growth did not occur in a homogeneous way. For comparison purposes, in 1940, the GDP of the State of São Paulo was 37,428,269.00, rising to 73,409,272.00 in 1950, reaching 149,506,099.00 in 1960. In the State of Sergipe, on the other hand, in the same years, the GNP was 451.274,00, rising to 626.124,00, reaching 1.290.181,00 (IBGE, 2019).

At the end of the 1960s, it became apparent that the adopted model was not sufficient to promote the reduction of social and regional inequalities. It was also observed that the predatory industrialization process would bring disastrous results, thus making a paradigm shift necessary. The fragility of the adopted economic model was felt in the following decade, worsening between 1980 and 1990. During this period, the economy suffered the effects of the crisis provoked by the foreign debt and by the high inflation. In the late 1990, the*per capita* GDP was about 4% lower than in 1980 (IBGE, 2019).

In order for development to be sustainable, it is not enough to evaluate it based solely on factors such as growth in gross domestic product, per capita income, industrialization, technological advancement, or social modernization, even though these factors surely contribute directly to the country's development, and the growth of the human development index is indispensable.

The development paradigm has been changing in the last decades. The understanding that economic growth and development are synonyms has been established. However, for a more accurate picture, other aspects must be measured, such as the improvement of the population's living conditions and the reduction of social inequalities. This assumption was the basis for the thought that sustainable development must be grounded on five pillars: social, environmental, territorial, economic, and political(SACHS, 2008).

For Furtado (1974), the idea of economic development was implemented to justify the concept of developed countries in opposition to peripheral nations. In his work, he states that economic development is nothing but a myth, justifying that it does not fulfill the "basic task of identifying the fundamental needs of the collectivity and the possibilities that the advance of science opens to man, to concentrate them in abstract objectives, such as investments, exports and growth".

The world concern about the economic model was addressed in 1968, during the founding ceremony of the "Club of Rome". In 1972, the entity published a report entitled "The Limits of Growth". In the same year, the UN promoted the United Nations Conference on the Human Environment, which became known as the Stockholm Conference. Although it did not deal expressly with sustainable development, its declaration already showed concern about the quality of the environment for future generations. According to the document, governments should prioritize plans for restructuring and adjusting technologies in order to preserve the environment (ONU, 2017).

At the time, Brazilian legislation already showed some measuresconcerning sustainable development. In 1981, in line with the worldwide desire for environmental protection, Law No. 6.938 was enacted, providing for the national environmental policy. For the opening of new highways, it determined two mandatory measures: the environmental impact study - EIA and the environmental impact report - RIMA as conditions for the licensing of activities that could harm the environment. In 1987, the World Commission on Environment and Development, created in 1983 by the United Nations Assembly, published the Brundtland Report. In this document, development was defined as that which "meets the needs of the present without compromising the ability of future generations to meet their own needs" (ONU, 2017).

In 1992, the United Nations International Conference on Environment and Development - ECO/92 was held in Rio de Janeiro. The representatives of the 179 participating countries signed an agreement, aimed at developing strategies to achieve sustainable development, called Agenda 21. With this same objective, in 2012, at the Rio+20 Conference, promoted by the United Nations, the seventeen sustainable development goals (SDGs) were defined, to be met by 2030. The National Program of the United Nations (PNDU) presents a more comprehensive concept of sustainable development, which cannot be achieved without the observance of the seventeen goals.

As Furtado (1974) notes, economic growth was founded on the preservation of elite privileges. On the other hand, Sem (2000) highlights the importance of the economic factor attributed to the role that markets play in the development process. However, he concludes that factors such as social welfare and the elaboration of public policies that ensure sustainable development are indispensable.

FINAL CONSIDERATIONS

The analysis developed throughout this work demonstrates that the evolution of national thinking with the choice of the road modal as the main means of territorial and social integration of the country. The approach was based on historical, political and economic issues. Until the middle of the 20th century, it was thought that natural resources were inexhaustible, and that economic growth was translated by the increase of capital. Starting in the 1980s, the concept of sustainable development began to gain strength.

Therefore, economic growth is just one of the various factors for sustainable development. Some considerations were made about the means of transportation of people and cargo adopted

in the course of the country's economic history. After the Second World War, despite some setbacks, the road transport mode was chosen as the priority in Brazilian transportation. Based on statistical data, the expansion of the highway network in the period 1940 to 1980 was demonstrated, which contributed greatly to national integration.

However, the erroneous political choices of governments, such as international indebtedness and the consequences of international economic impacts, prevented the model from achieving greater success. Environmentally, it was noted that the degradation of the ecosystem would lead to the exhaustion of natural resources. In the territorial and economic aspects, it was shown that the highways did not fulfill their role of bringing the desired progress to the regions. It was also observed that the road transport infrastructure was much more efficient in the more developed states, thus increasing the inequalities between regions.

In summary, it can be stated from this study that the panorama in which the road modal was implemented was unaligned with the pillars of sustainable development determined in international instruments such as the Millennium Development Goals, as well as in Brazilian legislation. Finally, one can conclude that the search for new paths and alternatives to meet the sustainability guidelines does not lie in the choice of a restricted model focused only on economic growth. The options chosen must be capable of promoting public policies that guarantee effective regional, economic, and social integration,with an emphasis on environmental protection. Only with a solid sustainable development project will it be truly possible to reduce social and regional difficulties.

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